The Use of Information and Communication Technologies in Academic Libraries in a Crisis Situation. Experiences of the University of Warsaw Library

Anna Kamińska
ORCID 0000-0002-2778-6694
University of Warsaw Library
University of Warsaw, Poland

Anna Książczak-Gronowska
ORCID 0000-0001-7475-927X
University of Warsaw Library
University of Warsaw, Poland

Zuzanna Wiorogórska
ORCID 0000-0003-1015-2000
Department of Information Studies
Faculty of Journalism, Information and Book Studies
University of Warsaw, Poland

Abstract

Purpose/Thesis: This study investigates how the crisis situation caused by the spread of COVID-19 influenced the work of library information and IT systems, with the University of Warsaw Library (BUW) as a case study.

Approach/Methods: The case study method was applied as it seemed to be the most appropriate for the purpose of this research. Five main areas of investigation were defined and then analyzed.

Results and conclusions: The use of the library's ICTs changed as a result of the COVID-19 pandemic, which mostly involved intensified use of such technologies. The study demonstrated the success of the shift to online service provision which will most likely continue even after the library reopens. The study also showed that a well-organized academic library which may easily move its services online in the case of a lockdown, is indispensable to support teaching and research.

Practical implications: This study can serve other academic libraries in Poland and abroad seeking to compare the solutions they introduced with BUW's most successful practices, so that they will be better prepared in case of the expected second wave of coronavirus which may bring more lockdowns.

Originality/Value: This study adds to the existing literature on the phenomenon of COVID-19 and libraries-related issues. However, unlike the majority of studies, it focuses more on information systems, electronic resources, and services hubs rather than on the library perceived as a public space and store of printed publications.

Keywords

Academic library. COVID-19. Information systems. Information users. Pandemic.

1. Introduction

The University of Warsaw Library (Pol. Biblioteka Uniwersytecka w Warszawie – BUW), established in 1817, is a leading academic library in Poland. Together with 40 faculty libraries, it constitutes a library and information system of the University of Warsaw (UW). Although BUW's priority patrons are the members of the UW community, it also functions as a public library. At the end of 2019, there were more than 112,000 patrons registered, including more than 69,000 fully authorized (i.e., the members of the UW community). The patrons from beyond the UW may use the library's resources onsite only; they have no borrowing rights and no remote access to electronic resources.

2. Context of the study

On March 10th, 2020, following the order of the Rector of The University of Warsaw, the director of BUW announced that from the following day (March 11th) the Library building would be closed until further notice. That day, the Library was operating until midnight; 3,318 people visited BUW and borrowed 8,137 items (to compare: the daily average of lent items is 1,500). This statistic received much attention from the media. The next day the library as it is traditionally understood (i.e., a building, book stacks, reading rooms) closed – it would not reopen for more than two months. However, the librarians, as well as other library systems and services, did not stop working. On the contrary, intensive "offstage" work, often organized over the "cloud," began, so that the library could continue to provide its services and to maintain contact with patrons. Although the pandemic forced the closure of physical spaces and limited social gatherings, research and teaching processes continued, and the objective of BUW was to provide the patrons with as much information and access to its collections as possible. On March 14th, the state of pandemic was introduced in Poland by the order of the Minister of Health. The announcements of the UW Rector, and the regulations he had been introducing since March 16, 2020, reflected the situation in the country and determined, among others, the mode of work at the Library.

This paper results from the study conducted while the pandemic was still on-going, but after lifting of the lockdown. The study investigated the effects of the crisis situation caused by the spread of COVID-19 on the work of the BUW information and IT systems. It considered the reactions and changes resulting from the crisis and how the patrons, the primary users of those systems, behaved in the face of BUW's rapid shift from a hybrid library to a fully online one. For the purposes of this study, we have identified five main areas of investigation, which will be discussed in the section "Methodology".

3. Literature review

3.1. *Associations of information management professionals and librarians, national libraries, and governmental bodies, and their response to COVID-19 outbreak*

Several guidelines and recommendations, as well as resources and tool hubs, were issued to help libraries and other public institutions in their everyday information and service provision. Following the objectives of this study, we analyzed them to find suggestions regarding information systems and services. We did not find any document dealing with these issues.

On state level, the guidelines and regulations introduced by the Ministry of Economic Development, Labour and Technology, The State Sanitary Inspection, and the National Library of Poland focused on the treatment and quarantining of books returned to libraries after the pandemic ended, on safety of the staff and procedures in case of a suspicion of infection, or on planning library events (BN, 2020a; 2020b; MRPiT, 2020).

On European level, LIBER (Ligue des Bibliothèques Européennes de Recherche – Association of European Research Libraries) highlighted the lack of appropriate copyright legislation and high costs of e-books which were particularly frustrating during the lockdown, when the libraries could provide only digitized versions of their materials or electronic resources (LIBER, 2020). EBLIDA (European Bureau of Library, Information and Documentation Associations) published a draft of a document titled *A European Library Agenda for the Post-Covid 19 Age* (EBLIDA, 2020), building on a survey conducted among library associations from 17 European countries, which sought answers to the "Checklist for Library Associations and Libraries in the Face of Covid-19 Crisis".

The International Federation of Library Associations and Institutions (IFLA) launched *COVID-19 and the Global Library Field* website, providing important resources for libraries responding to the coronavirus pandemic. However, the content covered resources and service provision rather than systems; the website gathers examples of good practices from libraries all over the world (IFLA, 2020). IFLA conducted a project named "National Libraries – Survey Impact COVID-19" (KB, 2020) in cooperation with Conference of Directors of National Libraries (CDNL) and the National Library of the Netherlands. Fifty-five national libraries in 53 countries all over the world have responded to the survey (19 NLs were located in Central and Eastern Europe, 11 in Western Europe). The survey concerned NLs' arrangements of their digital and online services; whether they enhanced their services, developed new online activities for their patrons, or provided an extra helpdesk for online questions.

In the USA, ALA (American Library Association) established a tool hub named COVID-19 Recovery (ALA, 2020), and a series of webinars on "pandemic preparedness". ACRL (Association of College and Research Libraries) offered a webinar titled "Making Remote Workers", focused on the management of library staff communication during the lockdown.

In general, we noticed that all above mentioned initiatives, surveys, or guidelines framed libraries as stores of printed publications and public spaces, rather than as information systems, electronic resources and services hubs.

3.2. Selected research projects

Although only a relatively short period has passed since the beginning of the pandemic, already a significant body of literature has been produced to describe the effect of the COVID-19 pandemic on academic libraries. Considering the specific scope of this study, the review examines the research concerned with ICTs used by academic libraries to work during the pandemic.

Some studies have discussed information technologies within the broader context of the impact of the pandemic lockdown on academic libraries. For instance, Janicke Hinchliffe and Wolff-Eisenberg (2020) with Ithaka S+R examined whether and how American academic libraries have changed their mode of work and service provision as a result of the COVID-19 pandemic. Until August 20th, 2020, 861 libraries responded to the survey. Among those, 603 libraries updated their answers later. Information technologies were mentioned in questions about reference services and library instruction programs. The answers to these questions showed that the majority of libraries moved their reference services online. Many libraries also ran their library instruction programs only online.

A similar research has been carried out in Italy, where Tammaro (2020) examined different types of Italian libraries. Regarding the use of ICTs in academic libraries during the lockdown, she focused on digital collections and noticed a significant increase in their use.

Several scholars have also studied particular aspects of ICTs used in academic libraries during the pandemic. Rysavyand Michalak (2020) described ICTs which allowed librarians of Hirons Library, Archives & Learning Center of Goldey-Beacom College (USA) to work from home. The authors described communication tools (Slack, Zoom and FlipGrid), a project planning tool (Notion), and a file sharing tool (SharePoint). Mehta and Wang (2020) discussed how the patrons of Clement C. Maxwell Library of Bridgewater State University (USA) used its digital services during the COVID-19 pandemic. Some information technologies were used to inform them about the changes in the library's services; these were the library's website, social media, email and public announcement platforms for students and faculty. These technologies were also used to share information about, and promote open educational resources and commercial electronic resources freely provided by the library. Librarians also created multimedia tutorials and guides showing the patrons how to connect to, and use electronic resources. Communication technologies such as Zoom, Microsoft Teams, LibChat, or LibAnswer were commonly used to provide reference services and bibliographic instruction sessions.

The response of academic medical/health sciences libraries to the COVID-19 pandemic has also elicited the interest of Library and Information Science (LIS) researchers. For instance, Yu and Mani (2020) examined 157 American academic medical/health sciences libraries to investigate whether and how they were providing information resources on COVID-19. The resources studied included COVID-19 search queries to retrieve publications from scientific databases, links to collections of publications relating to COVID-19, or guidance on fact-checking and evaluating information about COVID-19. The libraries mostly used the library's website to share information about the virus; some of them even created a separate webpage for the purpose. Webpages provided not only links to databases or collections of publications but also different types of multimedia e.g., videos, webinar records, or data visualizations. Mi, Zhang, L. Wu and W. Wu (2020), four

librarians from four American academic medical/health sciences libraries, shared their experience of work during the lockdown and listed information technologies they used. Most of these were chat software, videoconference or email to contact their patrons and to run online courses. They mentioned special websites or digital guides launched to share information and resources on COVID-19. One library prepared multimedia tutorials and videos on how to use relevant databases. Another used social media to promote the library's electronic resources.

To summarize our review of literature: we found that academic libraries applied diverse ICTs during the pandemic to meet their patrons' needs and to organize remote work for their staff. Communication technologies such as chat, videoconference or email were the most prominent. These technologies were intensively used to provide reference services, to run courses, and to answer patrons' queries. They were also used to maintain communication between librarians working remotely. Websites were another popular technology; the libraries' homepages were used to publish information about services during the lockdown, to provide guidelines on the use of electronic resources, or to share resources relating to the pandemic. Some libraries created dedicated websites with information and resources on COVID-19. Some libraries also used social media to inform patrons about the services offered, as well as to promote their electronic resources; some libraries also prepared multimedia tutorials on their electronic resources.

The majority of studies discussed here were conducted in American libraries (nine articles). There were also studies concerning the influence of COVID-19 on academic libraries in Canada, China, Italy, and Kuwait.

4. Methodology

We chose the case study method as it seemed the most appropriate for the purpose of our research. According to Yin (2003, 13),

> (...) a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.

Our research design comprises five components, as suggested by Yin (2003).
(1) Study questions. Did the use of ICTs in academic libraries change and how? Which of those technologies were used more often? Have any new technologies been used since the beginning of pandemic? Which of those technologies have worked well and which failed?
(2) Units of analysis. These are the ICTs used in academic libraries, particularly the technologies used in BUW: IT systems (computer networks, clusters of virtual and local servers, a Virtual Private Network (VPN), a Hidden Automatic Navigator (HAN), a temperature and humidity measurement system), library integrated system, electronic resources (fulltext databases, electronic books), social networks platforms (Facebook, Instagram, YouTube), communication technologies (email, chat, Messenger, Google Meet).
(3) Content and data to be analyzed. Statistical reports provided by diverse library units, social media content, YouTube videos, email correspondence, chat and Messenger

conversations, database statistics based on number of log-ins and downloads, and library website.

(4) The logic linking the content / data and the units of analysis.

(5) Interpretation of findings.

The time range for data analysis was March 11th – July 6th, 2020. On March 11th BUW was closed, and July 6th was the first day of summer holidays for the UW community as well as the end of the first cycle of exam sessions.

5. Data and content analysis

5.1. IT systems

The main objective of the BUW IT Department was to ensure that remote work would proceed safely during the pandemic, with special attention paid to cybersecurity and issues of data protection. To provide continuous operating of systems key IT infrastructure was identified and reconditioned, i.e., hardware, software, networks, and human resources; additionally, all IT systems management procedures were verified and modified if need arose. The new challenge was to establish IT procedures for remote work as before the lockdown there had been only 16 VPN accounts because the majority of BUW staff had not used it, working onsite in the library building.

Everyday tasks performed during the pandemic included ensuring the secure remote access to library OPAC and digital collections and managing local computer networks or clusters of virtual and local servers. The lockdown required configuring access to 37 new databases. During the pandemic, several international publishers opened their electronic collections and offered them for free to academic institutions. To be available for all members of the UW community, these resources needed HAN (Hidden Automatic Navigator) configuration.

As the library was closed to the staff as well as to the public, it was necessary to set up remote, safe home offices. For this purpose library laptops were configured and lent to those staff members who did not have their own hardware. The VPN was provided for all staff who needed to connect with BUW network or work in Virtua/VTLS integrated library system (ILS); in total, 80 new VPN accounts were set up. The new procedures for remote work followed the recommendations issued during the pandemic by the UW Data Protection Officer.

Within BUW's organizational structure, there are seven special collection departments. These are departments of prints, early printed books, maps, music, manuscripts, 19th century publications, and ephemera. Each department manages its own storage facility where a certain level of temperature and humidity must be maintained, depending on items' requirements. After the library was closed, it was particularly difficult to control storage conditions. IT systems proved useful in this case; a system controlling temperature and humidity was purchased and configured with email addresses of heads of relevant departments. Radio and ether net detectors, located in the rooms where the collections were stored, were generating reports that later were automatically sent by email, so that the managers could intervene if the need arose.

5.2. Library system

BUW and 38 branch libraries operate in VTLS/Virtua ILS. In practice, it means that there are more than one hundred so-called localizations in OPAC; almost every one of them has different settings in the system.

The pandemic situation and decisions made rapidly by the state and University authorities impacted the functioning of ILS during the lockdown and immediately after. We can distinguish three stages of its operation. The first stage, in early March, focused on preparing the libraries for the lockdown; it involved shutting down some of the ILS functionalities. The option to order items through OPAC was turned off; the due dates were prolonged; fees for overdue items were blocked. All of those maneuvers were complicated by the fact that the ILS system operates in several abovementioned localizations, and branch libraries often have different rules regulating circulation. The second stage, during the lockdown, mostly entailed the remote work of the library staff. Thanks to VPN, VTLS/Virtua was installed on several home computers (SSL – Secure Socket Layer protocol was used); it was particularly important for catalogers working in NUKAT, a Polish union catalog. Furthermore, all automatically generated notifications sent to patrons were turned off' and all the patrons' library accounts were automatically validated (previously, patrons had to come to the library in person to validate their accounts before the expiry date). The third stage encompassed after-lockdown activities, as the library circulation desk was reopened on May 18th in a temporary, outside location. Patrons could again return items and order new ones. As the library building remained closed to the patrons, they could access items from the open stacks only by using the new ordering functionality in OPAC and borrowing these items at the desk. Anew status, "quarantine" was set up in OPAC to describe the returned items that were put away and blocked from further circulation for five days. The fees for overdue items were restored; however, it was now possible to prolong the borrowed item five times, rather than only three. Again, all these solutions were difficult to implement and required cooperation between the BUW and branch libraries, as well as the IT Department; following the General Data Protection Regulation (GDPR) since ILS collects patrons' personal information.

5.3. Electronic resources

According to the BUW annual report (Wołodko et al., 2020), at the end of 2019 the library collection contained more than 797,000 of digital objects (e-books, e-journals, e-theses, and scanned objects in Crispa digital library).

For the purpose of this study, we analyzed the use of electronic resources available during the lockdown. We use the term "electronic resources" to refer to licensed databases, which UW subscribes to, and, due to copyright restrictions, available remotely only to UW community members. Login data analyzed below comes from HAN (Hidden Automatic Navigator) and refers only to database entries from outside the UW network; as when the library was closed, it was not possible to use the e-resources onsite. As mentioned earlier, the data shows the academic activity of UW students and staff because only this group is authorized for remote access. The report does not consider logging through VPN (Virtual Private Network), i.e. searches that could have been done by BUW librarians. Moreover,

the data collected for the period in question do not account for all databases due to delays in the provision of monthly statistics by the suppliers.

However, despite all these limitations, the results regarding the electronic resources usage during lockdown differ significantly from those for the same period in 2019. Total usage increased over 2.5 times from 41,062:38:24 hours (in 2019) to 126,656:20:12 hours (in 2020). The number of sessions (total calls) increased from 237,563 (in 2019) to 396,015 (in 2020), an increase of 67%. The scale of growth in the use of electronic resources is most evident in the summary of the number of data downloaded by users. In the examined period of 2020, 1.71 terabyte (TB) was downloaded, while in the same period last year only 0.48 TB. We therefore noticed an increase of almost 256%.
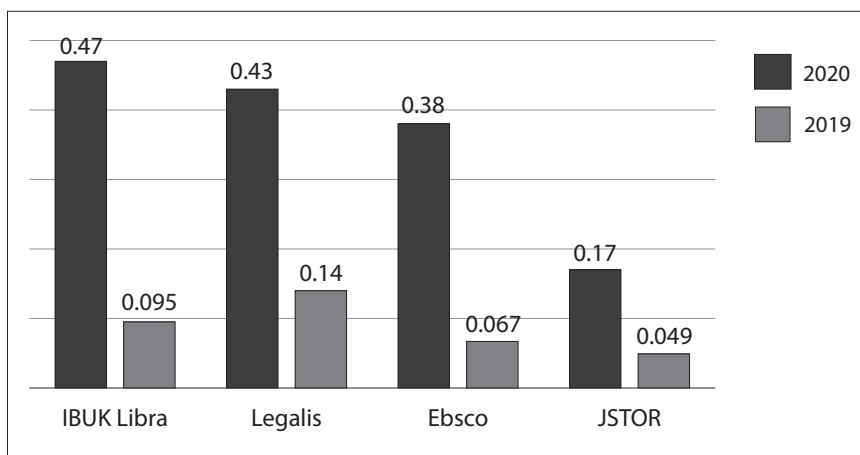

Fig. 1. The most popular electronic resources in 2020 and 2019
with the number of downloaded data in TB

The majority of data (in terabytes) was downloaded from two databases providing literature in Polish language (Fig. 1). The IBUK Libra database provides academic textbooks in various fields; and Legalis is a database containing legal acts, case law, and full texts of commentaries, monographs and articles from the journals of Polish branch of C.H. Beck Publishing House. Access to the Legalis database is limited to 50 simultaneous sessions. Compared to 2019, the use of IBUK grew more than four times (from 0.095 TB in 2019 to 0.43 in 2020). A similar increase was recorded for the Legalis database. In 2019, only 0.14 TB of data was downloaded from the database, whereas in 2020 it was 0.39 TB. Ebsco and JSTOR were also frequently used , according to the amount of downloaded data. These English language databases were also the most popular in 2019, but the users downloaded much less data from them (0.067 TB and 0.049 TB respectively).

Figures 2 and 3 compare the 2019 and 2020 percentage share of data collection from the analyzed databases. The temporary loss of access to printed collections increased the popularity of the Polish IBUK Libra database, but only by 5%. Legal databases were used at a similar level. An interesting case is LEX Omega; before March 2020 it was available onsite only, exclusively in the library building, with a limited access of five simultaneous sessions. After the lockdown began, the publisher decided to make the service available

remotely to the UW community. Therefore, the decline in popularity of Legalis might have been a result of LEX Omega service becoming available outside the library. The number of full texts downloaded from JSTOR and those found in Ebsco resources increased. This increase, however, was minimal, particularly in the case of JSTOR (1%). The decrease in the usage of other subscribed databases (by as much as 10%) might be confusing.
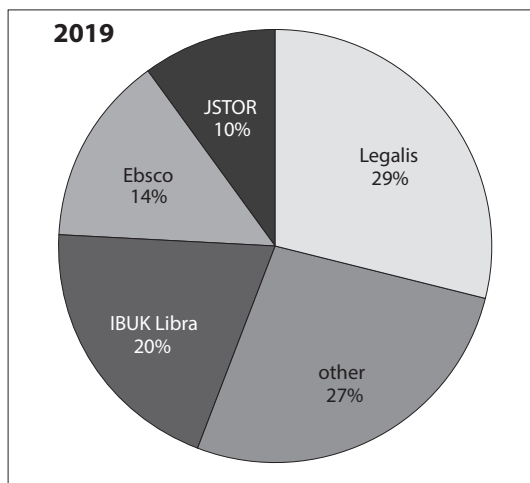

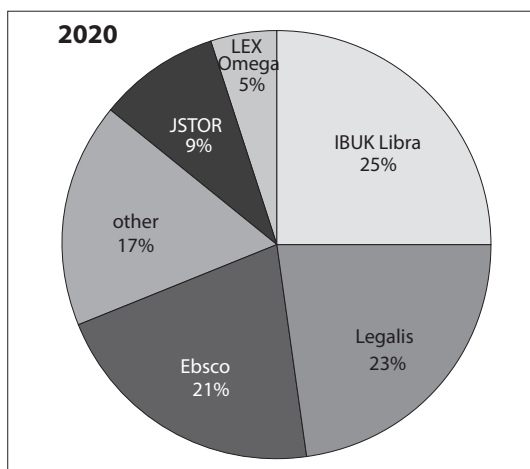Fig. 2. Percentage share of databases in the amount of downloaded data in 2019

Fig. 3. Percentage share of databases in the amount of downloaded data in 2020

It can be concluded that during the lockdown, which resulted in the loss of access to printed collections, the patrons who had never done it before, started to use the electronic resources available on the UW network. The library closure directed the users' attention to previously undervalued or unknown e-resources. The previously indicated dominance of legal databases was not accidental. Statistical data on the use of printed collections in

previous years indicates that the legal book collection circulated in the BUW most frequently (128,524 books were shelved in 2018 and 121,903 in 2019).

The second most intensively used collection in the BUW is the collection of texts from the category of Social Sciences (118,576 shelving in 2018 and 111,081 in 2019). This collection includes literature on economics, finance, sociology, and anthropology. The statistics of IBUK Libra e-book readers indicate that among the fifty most frequently opened and longest-read books, titles in economics clearly dominate (see Fig. 4).
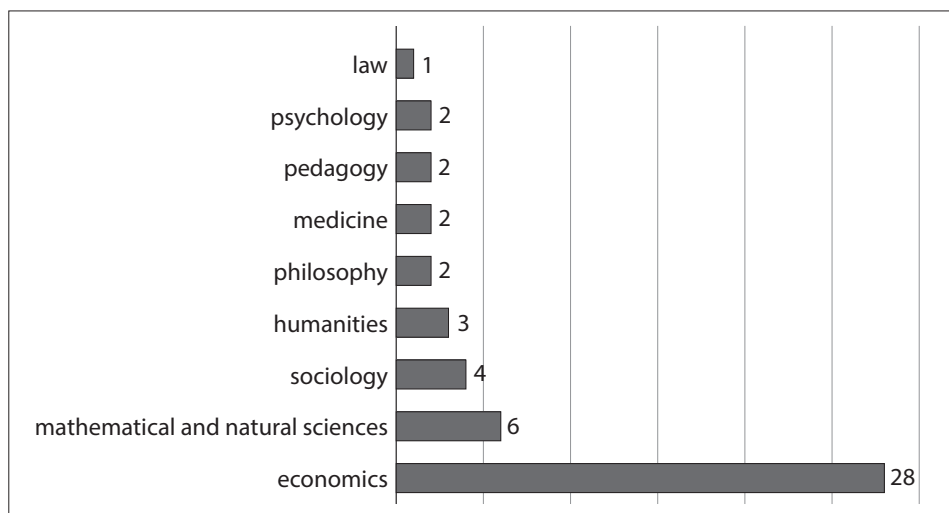

Fig. 4. IBUK Libra database, 50 most popular titles by field. Data from March 11th to July 6th, 2020

5.4. Social networks platforms

For more than a decade now, social media channels have been an indispensable communication platform for libraries of all types all over the world. To reach the patrons, libraries must be active on social media. Social media may serve as permanent reminders (Wrycza-Bekier, 2016, 8). This proved crucial during the pandemic lockdown. BUW maintains accounts on the following social media platforms: Facebook, Instagram, and YouTube.

During the pandemic, social media became one of the most important and immediate channels of information. However, they continued to function as marketing tools. Similarly to many businesses that had to be closed, BUW posted on Facebook and Instagram to maintain the contact with the patrons and to maintain its positive image. Additionally, BUW launched the series "#BUWdlaWas" (En. *BUW for You*) on Instagram, presenting the library units and staff involved in delivery of remote services. This is in line with "behind the scenes" Instagram stories, which institutions and companies use to promote their services and build a positive image (Wrycza-Bekier, 2016).

Sharing information remains the most important function of social media. Facebook posts informing about closure or re-opening of certain services, promotion of e-resources and guidelines on how to use e-books reached the biggest number of followers and were frequently liked, shared, and commented. The number of Facebook followers increased

during the pandemic by 778 and reached 18,599 (to compare: in the analogical period of 2019 it increased by 208).

The BUW YouTube channel added five video tutorials (prepared in the Active Presenter software) on solving diverse technical problems, for example changing the password to a library account, logging in to e-books collections, searching the electronic resources, or on the new lending rules, introduced in May 2020. These short, five-minute films reached an average of 277 views.

5.5. Communication technologies

Until the lockdown, a library chat, named *Ask a Librarian* (accessed directly from the library website), was a decreasingly popular means of communication between BUW and patrons who used to prefer to send their short online questions by Facebook Messenger account, or ask their question in person at the library reference desk. Surprisingly, in the year 2020, between March and July 885 chats were conducted with patrons; this makes *Ask a Librarian* the main and fastest online communication tool during the pandemic (together with Facebook Messenger, see below). To compare: in the whole year 2019 there were 352 chats and the number of chats was gradually decreasing each year; there were even suggestions of removing the chat from the BUW website (see Fig. 5).
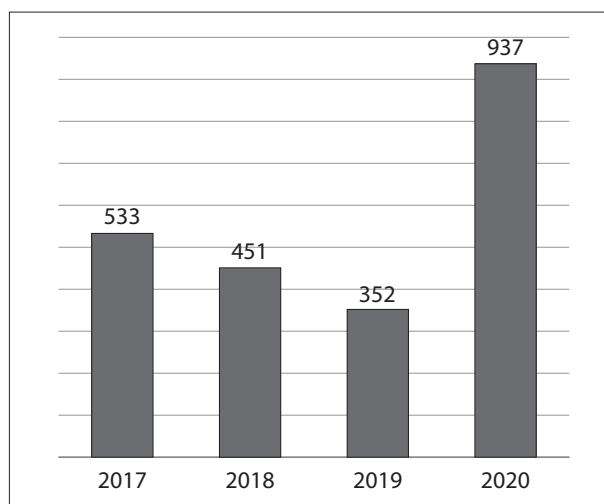

Fig. 5. Chats with patrons at Ask a Librarian in years 2017–2019 and from 1st January to 7th July 2020

Facebook Messenger was the other online communicator often used during lockdown. Many patrons use this application for their everyday communication, so it seems natural for them to use it to communicate with BUW too, at any time (also at nights and on weekends). There were 255 chats conducted (compared to 123 in the whole 2019). Messenger users usually expect a prompt reply, as they would in a chat with family or friends. This put BUW staff in a difficult position, as they have Messenger applications installed on their private phones and were non-stop notified of patrons' requests.

For some patrons, email still remains the first choice for offsite contact with the library. 1,607 electronic letters were sent to BUW, addressing all kinds of issues, related both to electronic and print collections, library services (e.g. interlibrary loans, scanning), as well as to the library building facilities (e.g. gardens, car parking).

The library website, which used to be a somewhat static means of information, was dynamically updated as the situation in the country and at the UW developed. The website was updated more than 400 times; all posts were published in two language versions (Polish and English). A pop-up window with information about BUW's functioning was set up on the main page so that everyone who entered the website could familiarize themselves with the summary of new rules without the need of in-depth research (see Fig. 6).
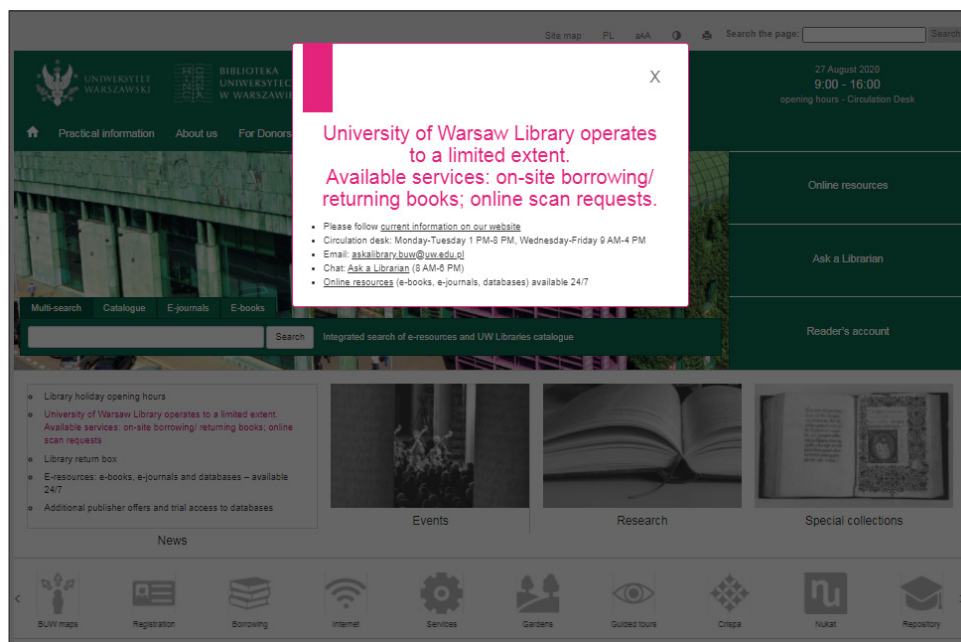

Fig. 6. BUW homepage during the pandemic period (English version)

Librarians, who had previously communicated mostly in person or via emails, started using Google Meet – a video conference application. The application facilitated efficient organization of team meetings to make important decisions, learn about the authorities' regulations, or cooperate within different projects; as well as to simply connect and maintain contact among staff members.

6. Conclusion

The use of the library's ICTs changed during the COVID-19 pandemic, which mostly involved more intensive use of technologies. Communication technologies such as Messenger and email were used much more often, which is understandable enough. The library chat

Ask a Librarian, which had hardly been used before, became the main communication channel between patrons and BUW, and, in some sense, it has survived thanks to the pandemic.

The other heavily used technology were the electronic resources, mostly e-books databases. This exposed a particularly interesting issue, which is that the library's patrons had preferred paper books to e-books while preparing their diploma theses and studying for exams, and they were forced to change their habits because of the pandemic.

We have also observed the increase in the use of the VPN by librarians to work from home, as well as the patrons' interest in library social media, particularly Facebook and YouTube, to get the news, learn about electronic resources, and in general to keep in touch with the library.

In the analyzed period, BUW benefited from library ICTs; furthermore, the librarians started to use new technologies, e.g. Google Meet to cooperate and connect during the lockdown, or the temperature and humidity measurement system for special collections, configured with email.

The study shows the success of the library's shift online which, most likely will continue in some form even after re-opening the onsite library. For example, the lockdown resulted in an increase of e-books and e-journals usage. The patrons had not been in the habit of using electronic collections every day before the pandemic, and despite BUW's regular promoting campaigns, before the lockdown these resources had been underused, particularly by the biggest group of the patrons, i.e., undergraduate students. This study might inspire a closer study of patrons' habits, and future research in that direction.

Whether the library user was a member of the UW community or not was a key factor determining which resources they could legally access or, since May, whether they could borrow the print items.

It is worth noticing that the operational programs and communication plans which BUW had to implement during the pandemic were mostly self-developed as there was not enough time, not many inspiring models of practices in analogous situations, or prior recommendations on how to operate. The rapidly changing situation forced dynamic reactions and adjustment of the services to the current needs and circumstances.

This study adds to the existing literature on the phenomenon of COVID-19 and issues related to libraries. Since the pandemic has not ended yet, and the situation is not stable, this study can serve other academic libraries in Poland and abroad, as they may compare the solutions they introduced with the best practices from BUW, so they will be better prepared in case of the expected second wave of coronavirus which may result in repeated lockdowns. The study proves that a well-organized academic library, which in case of lockdown can easily shift into online mode, is an indispensable source of support for teaching and research processes.

Acknowledgements

References

ALA (2020). *Pandemic Preparedness. Resources for Libraries* [online]. American Library Association [24.05.2020], http://www.ala.org/tools/atoz/pandemic-preparedness

BN (2020a). *Rekomendacje Biblioteki Narodowej dla bibliotek po zniesieniu zakazu prowadzenia działalności bibliotecznej* [online]. Biblioteka Narodowa [24.08.2020], https://bn.org.pl/w-bibliotece/3961-rekomendacje-biblioteki-narodowej-dla-bibliotek-po-zniesieniu-zakazu-prowadzenia-dzialalnosci-bibliotecznej.html

BN (2020b). *Rekomendacje Biblioteki Narodowej dotyczące organizowania wydarzeń w bibliotekach* [online]. Biblioteka Narodowa [24.08.2020], https://bn.org.pl/aktualnosci/4007-rekomendacje-biblioteki-narodowej-dotyczace-organizowania-wydarzen-w-bibliotekach.html

Dar, M. (2020). Ramping up Remote Reference During COVID-19 Campus Shutdowns. *Library Journal* [online]. April 1, 2020 [21.08.2020], https://www.libraryjournal.com/?detailStory=ramping-up-remote-reference

EBLIDA (2020). *A European Library Agenda for the Post-Covid 19 Age* [online]. European Bureau of Library, Information and Documentation Associations [24.08.2020], http://www.eblida.org/Documents/EBLIDA-Preparing-a-European-library-agenda-for-the-post-Covid-19-age.pdf

Gerber, A. (2020). How Medical Librarians Are Handling the Coronavirus Crisis. *Library Journal* [online] March 25, 2020 [21.08.2020], https://www.libraryjournal.com/?detailStory=how-medical-librarians-are-handling-the-coronavirus-crisis

Guo, Y., Yang, Z., Yang, Z., Liu, Y. Q., Bielefield, A., Tharp, G. (2020). The Provision of Patron Services in Chinese Academic Libraries Responding to the COVID-19 Pandemic. *Library Hi Tech*, ahead-of-print, https://doi.org/10.1108/LHT-04-2020-0098

Hendal, B. A. (2020). Kuwait University Faculty's Use of Electronic Resources During the COVID-19 Pandemic. *Digital Library Perspectives*, ahead-of-print, https://doi.org/10.1108/dlp-04-2020-0023

IFLA (2020). *COVID-19 and the Global Library Field* [online]. International Federation of Library Associations and Institutions [24.05.2020], https://www.ifla.org/covid-19-and-libraries

Janicke Hinchliffe, L. J., Wolff-Eisenberg, C. (2020). *US Academic Library Response to COVID19 Survey* [online]. Public Document of Links, Google Drive [21.08.2020], https://docs.google.com/document/d/e/2PACX-1vTUm3ZmNwiYXG6ghLmYYSJ7FbB7vqYhQQaokqne18J68GSLufY6ZHguNi16zJMXl10a0HaiBgROR-R7/pub

KB (2020). *Survey Impact COVID-19* [online]. Koninklijke Bibliotheek, National Library of the Netherlands, on behalf of CDNL, in cooperation with IFLA CDNL – Conference of the Directors of National Libraries [24.08.2020], https://conferenceofdirectorsofnationallibraries.files.wordpress.com/2020/04/200415-survey-impact-covid-19-def-1.pdf

LIBER (2020). *Research Under Pressure: Impact of Covid-19 Through A Librarian's Eyes* [online]. Ligue des Bibliothèques Européennes de Recherche – Association of European Research Libraries [24.08.2020], https://libereurope.eu/blog/2020/07/17/research-under-pressure-impact-of-covid-19-through-a-librarians-eyes/

Mehta, D., Wang, X. (2020). COVID-19 and Digital Library Services – a Case Study of a University's Library. *Digital Library Perspectives*, ahead-of-print, https://doi.org/10.1108/DLP-05-2020-0030

Mi, M., Zhang, Y., Wu, L., Wu, W. (2020). Four Health Science Librarians' Experiences: How They Responded to the COVID-19 Pandemic Crisis. *College &Research Libraries News*, 81(7), 330–334, https://doi.org/10.5860/crln.81.7.330

MRPiT (2020). *Wytyczne dla funkcjonowania bibliotek w trakcie epidemii COVID-19 w Polsce* [online]. Ministerstwo Rozwoju, Pracy i Technologii [24.08.2020], https://www.gov.pl/web/rozwoj/biblioteki

Rysavy, M. D. T., Michalak, R. (2020). Working From Home: How We Managed Our Team Remotely With Technology. *Journal of Library Administration*, 60(5), 532–542, https://doi.org/10.1080/01930826.2020.1760569

Tammaro, A. M. (2020). COVID 19 and Libraries in Italy. *International Information & Library Review*, 1–5, https://doi.org/10.1080/10572317.2020.1785172

Tranfield, W. M., Worsham, D., Mody, N. (2020). When You Only Have a Week: Rapid-Response, Grassroots Public Services for Access, Wellness, and Student Success. *College & Research Libraries New*, 81(7), 326–336, https://doi.org/https://doi.org/10.5860/crln.81.7.326

Walsh, B., Rana, H. (2020). Continuity of Academic Library Services During the Pandemic: The University of Toronto Libraries' Response. *Journal of Scholarly Publishing*, 51(4), 237–245, https://doi.org/10.3138/jsp.51.4.04

Wołodko, A., Rowińska, M., Ślaska, K. (eds). (2020). *Biblioteka Uniwersytecka w Warszawie oraz biblioteki wydziałowe Uniwersytetu Warszawskiego w roku 2019. Sprawozdanie* [online]. Biblioteka Uniwersytecka w Warszawie [01.09.2020], https://www.buw.uw.edu.pl//wp-content/uploads/2020/06/BUW_sprawozdanie_2019_na_www.pdf

Wrycza-Bekier, J. (2016). *Jak zapowiadać wydarzenia kulturalne w Internecie, by przyciągnąć i zaangażować odbiorców. Webwriting w kulturze*. Warszawa: Wydaw. Wiedza i Praktyka.

Yin, R.K. (2003). *Case Study Research. Design and Methods*, 3rd ed. Thousand Oaks, London, New Delhi: SAGE Publications.

Yu, F., Mani, N. (2020). How American Academic Medical/Health Sciences Libraries Responded to the COVID-19 Health Crisis: An Observational Study. *Data and Information Management*, 4(3), 200–208, https://doi.org/10.2478/dim-2020–0013

Yuvaraj, M. (2020). Global Responses of Health Science Librarians to the COVID-19 (Coronavirus) Pandemic: A Desktop Analysis. *Health Information and Libraries Journal*, 7, https://doi.org/10.1111/hir.12321

Wykorzystanie technologii informacyjno-komunikacyjnych w bibliotekach akademickich w sytuacji kryzysowej. Doświadczenia Biblioteki Uniwersyteckiej w Warszawie (BUW)

Abstrakt

Cel/Teza: Celem badania opisanego w artykule było prześledzenie, jak kryzysowa sytuacja, spowodowana rozprzestrzenianiem się wirusa COVID-19 wpłynęła na pracę bibliotecznych systemów informacyjnych i informatycznych, na podstawie analizy danych z Biblioteki Uniwersyteckiej w Warszawie (BUW)

Koncepcja/Metody badań: Wykorzystano metodę pojedynczego studium przypadku, którą uznano za optymalną do celów tego badania. Zdefiniowano, a następnie przeanalizowano pięć głównych obszarów badania.

Wyniki i wnioski: W okresie pandemii COVID-19 dotychczasowe wykorzystanie w bibliotekach technologii informacyjno-komunikacyjnych uległo przekształceniom, co wiązało się głównie ze wzrostem intensywności ich wykorzystania. W badaniu dowiedziono pomyślnego przejścia BUW na funkcjonowanie online, które prawdopodobnie, do jakiegoś stopnia będzie obowiązywało także po ponownym otwarciu budynku biblioteki. Badanie dowiodło także, że dobrze zorganizowana biblioteka akademicka, która w przypadku wymuszonego zamknięcia może łatwo przejść na funkcjonowanie zdalne, jest niezbędna do zapewnienia wsparcia procesu badawczo-dydaktycznego uczelni.

Zastosowanie praktyczne: Opisane badanie może służyć innym bibliotekom akademickim w Polsce i zagranicą w celu porównania wprowadzonych rozwiązań oraz dobrych praktyk wypracowanych

w BUW. Może im także pomóc w przygotowaniu się do tzw. drugiej fali epidemii, która może skut-kować powtórzeniem przymusowego zamknięcia.

Oryginalność/Wartość poznawcza: Niniejszy artykuł stanowi wkład do dotychczasowego zbioru piśmiennictwa poświęconego zagadnieniom funkcjonowania bibliotek w czasie pandemii COVID-19. Jednakże w odróżnieniu od większości publikacji, skupia się głównie na systemach i usługach infor-macyjnych oraz zasobach elektronicznych, a nie na bibliotece rozumianej jako przestrzeń publiczna i książnica udostępniająca drukowane kolekcje.

Słowa kluczowe

Biblioteka akademicka. COVID-19. Pandemia. Systemy informacyjne. Użytkownicy informacji.

ANNA KAMIŃSKA is Academic Librarian at the University of Warsaw Library and researcher in librarian-ship and information science. She completed doctoral studies at the University of Warsaw and is preparing a thesis on digital humanities and its relationship with information science. She did a research traineeship in the Laboratoire GERiiCO (University of Lille, France). Her main areas of interest include digital huma-nities, scholarly communication, data curation, and user studies. Her most import ant publications are: Co mogą zaoferować cyfrowej humanistyce biblioteki i ośrodki informacji? (Zagadnienia Informacji Naukowej, 2017, https://doi.org/10.36702/zin.372); *Wizualne formy prezentacji informacji w humanistyce i ich miejsce w formalnej cyfrowej komunikacji naukowej* (Nauka o informacji w okresie zmian. Informatologia i huma-nistyka cyfrowa, *co-editors: B. Sosińska-Kalata, M. Przastek-Samokowa, Warszawa, 2015).*

Contact to the Author:
a.kaminska8@uw.edu.pl
University of Warsaw Library
Dobra 56/66
00-312 Warsaw, Poland

ANNA KSIĄŻCZAK-GRONOWSKA is Academic Librarian and Head of Information Services and Training Department at the University of Warsaw Library. She is also the manager of Repository of the University of Warsaw. She holds a master's degree in film studies from the University of Łódź and in law from the Univer-sity of Warsaw. She also completed postgraduate programs in Information Management and Information Technology, and in Intellectual Property Protection at the University of Warsaw. She has been a leader or a participant of several projects and grants carried out at the University of Warsaw Library.

Contact to the Author:
a.ksiazczak@uw.edu.pl
University of Warsaw Library
Dobra 56/66
00-312 Warsaw, Poland

ZUZANNA WIOROGÓRSKA, PhD, is Assistant Professor at the Faculty of Journalism, Information and Book Studies, University of Warsaw, Academic Librarian at the University of Warsaw Library, and As-sociate Member of Laboratoire GERiiCO (University of Lille, France). Her main areas of interest include research data management, information literacy in multicultural context, users of information, and 21st century skills. Her most important recent publications are: Research Data: Management and Opening. Polish and European Perspectives (Zagadnienia Informacji Naukowej, 2019, https://doi.org/10.36702/ zin.14); Data Literacy and Research Data Management in Two Top Universities in Poland. Raising Aware-ness (2018, co-authors: J. Leśniewski, E. Rozkosz, E.; published in: S. Kurbanoğlu, J. Boustany, S. Špiranec, E. Grassian, D. Mizrachi (eds, Information Literacy in the Workplace: 5th European Conference, *ECIL 2017, Cham: Springer. https://doi.org/10.1007/978-3-319-74334-9_22); The Importance of Information Literacy for Asian Students at European Universities: Outlines. (2018,* Paideia, *https://doi.org/10.33034/ PAIDEIA.2018.6.1.103);* Nauka o informacji w okresie zmian. Innowacyjne usługi informacyjne *(co-editors: B. Sosińska-Kalata, P. Tafiłowski, Warszawa, 2017).*

Contact to the Author:
z.d.wiorogorska@uw.edu.pl
Department of Information Studies
Faculty of Journalism, Information and Book Studies
University of Warsaw
Nowy Świat 69
00-046 Warsaw, Poland